Fermilab — Fermi National Accelerator Laboratory

Technical Division-Machine Shop

Procedure Qualification Record	No. *Fermi PQR SS-8-001*	Date: *12/7/2009*

Revision: __ Date: _____ Remarks:

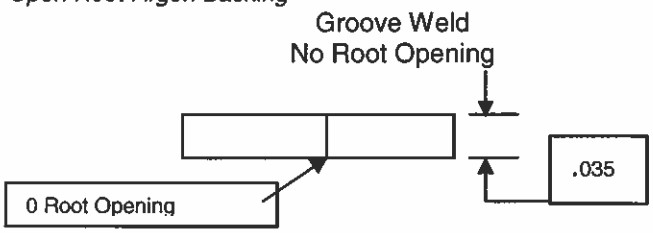
Welding Process/Weld Type: *GTAW/Manual*	*In accordance with:*	*Fermi WPS SS-8-001*

Joints (QW-402)

Weld Type:	*Square Butt Groove*
Backing:	*No Backer/Gas Only*
Root Opening:	*No Opening*
Root Face:	*.035"*

Details:

Open Root-Argon Backing



Base Metals (QW-403)			**Post Weld Heat Treatment (QW-407)**
Material Spec., Type or Grade:			**Type:** *No PWHT performed*
SA 240 plate type 304	**To**	*SA 240 plate type 304*	**Temperature:**
P Number: *8, Group 1*	**To**	**P Number:** *8, Group1*	**Time:**
Thickness of Coupon (in.)		*.035"*	
Diameter of Test Coupon (in.)		*Plate*	

Filler Metals (QW-404)		**Gas (QW-408)**	**Percent Composition**	
SFA Specification	*5.9*		**Gas**	**Mixture%**	**Flow Rate**
AWS Classification:	*308/308L*	**Shielding**	*Argon*	*99.99%*	*15 CFH*
Filler Metal F-No.:	*F6*	**Trailing:**	*None*		
Weld Metal Analysis A-No.:	*8*	**Backing:**	*Argon*	*99.99%*	*15 CFH*
Size of Filler Metal (in.):	*.035"*	**Other:** *Maintain Argon purge on backside of plate for entire weld. Use alignment fixture to position plates for welding and purging. Non-Pulsing Current*			
Weld Deposit "t"(in.):	*.035"*				
Filler Metal Product Form:	*Bare Wire/Solid*				

Positions (QW-405)		**Electrical Characteristics (QW-409)**	
Position of Joint:	*Flat-1G*	**Current/Polarity:** *DCEN*	
Weld Progression:		**Amps:** *40-48*	**Volts:** *8-12*
Other:		**Tungsten Type & Size:**	
		Other: *Non-Pulsing Current*	

Preheat (QW-406)		**Technique (QW-410)**	
Preheat Temperature:	*50 ° F Minimum*	**Travel (ipm):** *As Required*	**Oscillation:** *None*
Interpass Temperature:	*350° F Maximum*	**String/Weave Bead :**	*Stringer*
Minimum Weld Temp.	*32 ° F*	**Multiple/Single Pass :**	*Single*
		Multiple/Single Electrode :	*Single Electrode*
		Nozzle/Gas Cup Size:	*#6*

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Tensile Test (QW-150)

Specimen No.	Dimensions	Area (Squared in.)	Ultimate Total Load (lbs.)	Ultimate Stress (PSI)	Failure Type & Location
001	0.0348 x 0.7500	0.0261	2802.0	107400	HAZ/ Ductile
002	0.0378 x 0.7540	0.0285	2684.0	94200	Weld/Ductile

Guided Bend Test (QW-160)

Figure Number & Type	Result	Figure Number Type	Result
QW-462.3 (a) Face Bend	Pass-No Visible Cracks	QW-462.3 (a) Root Bend	Pass-No Visible Cracks
QW-462.3 (a) Face Bend	Pass-No Visible Cracks	QW-462.3 (a) Root Bend	Pass-No Visible Cracks

Welder's Name : William Gatfield	ID : 04609N	Weld Stamp : W-12

Visual Examination: Acceptable	X-ray per ASME Section IX, QW-191.2.

Radiography Conducted By:	N/A	

Tests Conducted by:	Exova Inc.	T914242	Date: 12/07/2009

Welding of coupon Verified by:	Mike Reynolds 03993N	Verification # 11272009-1-RH	Date: 11/27/2009

We certify that the statements in this record are correct and that the test welds were prepared, welded, and tested in accordance with the requirements of Section IX of the ASME Code.

PQR prepared by: *Fermi National Accelerator Laboratory*

Authorized Representative _____ Date: 12/07/2010

Use of Fermilab Welding Procedures and Welder Qualifications for non-Fermilab work shall be at the sole risk and responsibility of the Subcontractor, and the Subcontractor shall indemnify and save Fermilab and the government harmless from any and all claims, demands, actions or causes of action, and for any expense or loss by reason of Subcontractor's and their employees possession and use of Fermilab procedures and qualifications.

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